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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,104	11/27/2000	John Burke	65485-0037	5328

10291 7590 05/06/2002

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EXAMINER
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KOCH, GEORGE R

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 05/06/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-4

**Office Action Summary**

Application No.

09/723,104

Applicant(s)

BURKE, JOHN

Examiner

George R. Koch III

Art Unit

1734

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

## **DETAILED ACTION**

### ***Drawings***

1. Figures 1, 2, 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The disclosure is objected to because of the following informalities:

Specification page 4, line 19, the number "400" is not present in the drawings.

Specification page 5, line 2, the number "400" is not present in the drawings.

Specification page 5, line 6, the number "402" is not present in the drawings.

Specification page 5, line 12, the number "402" is not present in the drawings.

Specification page 5, line 14, the number "402" is not present in the drawings.

Specification page 9, line 11, the number "600" is not present in the drawings.

Specification page 9, line 11, the number "602" is not present in the drawings.

Specification page 9, line 15, the number "604" is not present in the drawings.

Specification page 9, line 22, the number "604" is not present in the drawings.

Specification page 10, line 4, the number "600" is not present in the drawings.

Specification page 10, line 9, the number "600" is not present in the drawings.

Appropriate correction is required.

3. The specification is objected for not providing antecedent basis for claims 9-13. The drawings and the specification only disclose a system with one compressor (see especially Figure 5 and its corresponding description in the specification). Claim 9 and its dependent claims can be read to require two compressors. However, only one compressor is visible in Figure 5 (the only Figure of the compression apparatus) or in pages 7 and 8 of the specification, which describe the apparatus. The specification provides no antecedent basis for a second compressor.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 1-8, 12, 13 and 14-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites the limitation "heating" in line 10. There is insufficient antecedent basis for this limitation in the claim.

8. Claim 2 recites the limitation "the step of adjusting the pressure" in lines 1-2.

There is insufficient antecedent basis for this limitation in the claim.

9. Claim 7 recites the limitation "the temperature" in line 1. There is insufficient antecedent basis for this limitation in the claim.

10. Regarding claims 3, 12 and 14, the use of the phrase "holding/clamping" renders the claim indefinite because it is unclear whether the applicant is referring to 'holding and clamping' or 'holding or clamping'.

11. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 calls for a compressor in line 3, and calls for a compressor in line 8. It is unclear whether applicant intended one compressor with the capability to perform both functions, or two separate compressors in the same system. Assuming that the intention is for one compressor, the error is in not using "said" or "the" prior to the second recitation of the word compressor. On the other hand, if the intention was for two compressors, then the error lies in not identifying the compressors properly, using language such as "a first compressor" and "a second compressor".

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1734

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

### ***Claim Rejections - 35 USC § 103***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US Patent 4,705,587) in view of Wildes (US Patent 6,323,661, filed on May 1, 2000).

Smith discloses a system capable of connecting a first and second conductive surface, comprising a compressor (item 38) and means for curing (item 20, 26). Smith does not disclose a meter for measuring an electric characteristic of the bond and generating a feedback signal.

Smith does not disclose a meter for characterizing the electrical resistance of an anisotropic bond.

Wildes discloses a meter which can measures the electrical resistance of an anisotropic conductive adhesive (see especially column 2, lines 30-42). Wildes discloses that monitoring the electrical resistance of a bond allow for the elimination of defective parts early in a production line, before incorporation into a greater system (see column 2, lines 16-29), thus reducing production losses. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have incorporated a meter for measuring the resistance of an anisotropic conductive bond as suggested by Wildes in order to reduce production losses in the overall apparatus of Smith.

As to claim 10, Smith discloses a heater and a thermode (column 2, lines 34-49).

As to claim 11, the electrical characteristic measured by Wildes meter is resistance.

As to claim 12, Smith in view of Wildes is capable of being programmed to perform the claimed operation.

As to claim 13, the electrical characteristic measured by Wildes meter is resistance.

#### Allowable Subject Matter

16. Claims 1-8 and 14-16 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

17. The following is an examiner's statement of reasons for allowance: With regard to claims 1-8, in a method of connecting a first and a second conductive surface including steps of placing an anisotropic material between first and second substrates, curing the anisotropic material, and compressing the assembly, the prior art does not disclose the step of monitoring an electrical characteristic of the bond during at least one of the compressing and curing steps and generating a feedback signal corresponding to the electrical characteristic. Similarly, with regard to claims 14-16, in a method of connecting a first and a second conductive surface including steps of placing an anisotropic material between first and second substrates to form an assembly, heating the anisotropic material to cure the anisotropic material, and compressing the assembly to form a conductive bond between the first and second conductive surfaces via the anisotropic material, the prior art does not disclose the limitation of monitoring the resistance of the conductive bond during at least one of the compressing and



heating steps and generating a feedback signal corresponding to the resistance, and reducing the pressure applied during the compressing step to a holding level when the feedback signal indicates that the electrical characteristic has reached a predetermined threshold.

US patent 6,336,990 and US Patent 6,077,382 disclose that it is known to use a method for manufacturing a bonded substrate wherein the first and second conductive surfaces are bonded by use of an anisotropic material during the compressing or heating steps. The references provide support for controlling the temperature and pressure of the bonding operation by the apparatus. However, these references do not disclose of either a step of measuring the electric characteristics of the bond or a mechanism capable of measuring the electrical characteristics of the bond. Similarly, US Patent 6,323,661 to Wildes merely discloses using a meter to measuring the electrical characteristic, but make no disclosure of monitoring the electrical characteristic during bonding, although the meter is capable of being used in such a fashion.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (703)

305-3435 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (703) 308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
George R. Koch III  
May 1, 2002

  
RICHARD CRISPINO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700